

REMARKS CONCERNING CLAIM REJECTION

Claim Rejection – 35 USC § 102

It is the position of the applicants that Fiene, US patent No. 6,508,567 B1, DOES NOT anticipate the present invention, a modular fluorescent light fixture, because there are numerous differences in the intent of the invention, differences in structure, and differences in the functions of individual components. These many differences are set forth in the paragraphs below. This comparison is made against the present patent application, which may be summarized as:

A 5-sided housing with sides and top mutually perpendicular to each other

Reflector is in the form of a conic section. The preferred form of the reflector is one having a hyperbolic cross-section, namely, a dual compound hyperbolic reflector. The material of construction of the reflector is generally metal with a spectral reflecting surface with 95% reflectance.

The two fluorescent tubes are to be F14T5 tubes.

The purpose of the invention is for energy savings, yet delivering adequate light levels.

Fiene Summarized

Fiene discloses a luminaire with the purpose of having a certain fire rating. This is achieved by using the same material as the acoustic ceiling tile as the material to make the structure of the luminaire. The truncated pyramid structure is to be nest-able and stackable. The ballast is located in a remote location, away from the luminaire, so that the structural material of the luminaire does not have to be metal, as required by the National Electrical Code

Figure 13 of Fiene shows a 5-sided shape of the luminaire structure in the form of a truncated pyramid. In column 5, lines 38 & 39, Fiene states that the reflector material used is a 0.060 inch thick, UV stabilized, white plastic with a HB flame rating. In the opinion of applicants, a white plastic would have a reflectance of about 50% and therefore cannot be considered spectral. Even though Fiene states in column 15, line 7, that "the side panels can be vertical", the scope of the invention is determined by the claims, and it can be seen in claims 5, 12, and 18 that the only intent is to have the shape of the luminaire be a truncated pyramid. This shape is also universally shown in all the

figures. Figure 13 shows the fixture with 3 linear tubes not two. In column 12, line 8, T5 rapid start lamps are mentioned along with T8 and T12 lamps. Specific T5 lamps are not mentioned. Figure 13 also shows the sockets and socket supports located above and external to the luminaire and descending through holes in the truncated pyramid. This is quite different than the present invention where the sockets are internal to the fixture and mounted to the socket supports. In figure 6 of Fiene is shown a 2X4 troffer as a single unit. The concept of combining two 2X2 fixtures to make a 2X4 troffer is not mentioned or shown by Fiene.

In summary, there are many differences in purpose, structure, reflectance of the reflector, shape of the reflector, number of tubes, and position of the ballast between these two configurations. Clearly, Fiene does not anticipate this disclosed invention.

Claim Rejection – 35 USC § 103

Fiene (US patent 6,508,567) has been used as a reference to reject claims 2, 3, and 5. There are several reasons why the current patent application is non-obvious in reference to Fiene. In figure 4 of Fiene is shown a series of light fixtures arranged in a sequential pattern in every other slot, both laterally and longitudinally. No two fixtures are installed immediately next to each other. Nothing in figure 4 suggests that placing two 2X2 light fixtures next to each other could make a 2X4 troffer. In fact, Fiene, in figure 6 shows a 2X4 fixture, where if it had been obvious to Fiene, he could have mounted two 2X2 fixtures next to each to achieve the same result, yet, he did not. Lack of implementation on the part of Fiene or by others within all the US patents examiner has referenced indicate that it is not obvious. Placing the two 2X2 light fixtures next to each other represents a new principle of implementation previously unrecognized. There is an unexpected result achieved by placing two modular fluorescent light fixtures next to each other; the same fixture used in two different ways to illuminate a room. The fixtures near the walls of the room become “wall washers”, which adds to the light in the room and makes the room feel larger. This flexible method of putting two identical fixtures together avoids the second set of tooling, production assembly line, and cost associated with producing a second size of light fixture. Fiene has solved a different problem,

namely, a luminaire that will have a fire rating. The present invention uses a spectral reflector to vastly improve light delivery and light level such that fewer electrical parts such as fluorescent tubes are required and thus the fixture uses far less energy than comparable fixtures. In summary, Fiene lacks any suggestion whatsoever of putting two 2X2 fixtures together to make a 2X4 fixture.

Examiner has called attention to Fiene, US Patent No. 6,508,567 B1, in light of Wordin, US Patent No. 6,170,962 B1, in rejecting Claim No. 4 of the application, concerning the reflector. There are several reasons why a person of ordinary skill in the art would not combine these two patents, to see the combination as obvious. These patents are solving different problems; in the case of Fiene, he is improving the fire rating of the luminaire where as Wordin has devised a fluorescent light fixture that will provide adequate light level while saving energy. The purpose of the reflector is to improve the efficiency of the combination of the two fluorescent tubes with the dual compound hyperbolic reflector. Fiene never mentions energy savings and Wordin never mentions improved fire ratings. Examiner may have misunderstood Wordin, for on page 7 of the Office Action, Examiner indicates that the light is projected "both in an upward and downward direction" where as in fact the reflected light from the dual compound hyperbolic reflector reflects the light from the two fluorescent tubes "in an outward and downward direction." The reflected light appears to be coming from the virtual focus in a radial pattern. In Fiene, the housing and reflector are one piece of material, a white plastic, probably 50% reflective for a fire rating, the material being a fire resistant material. In Wordin, the housing is separate from the reflector, which is spectral having a 95% reflectance for the purpose of vastly improved light utilization. One skilled in the art of the design of energy saving light fixtures would not look to go to a less reflective material. These are mutually exclusive paths in that Fiene has selected his material for the reflector based on the need for a fire rating while Wordin has selected his material for the reflector based on energy savings and superior light delivery, which are features not considered by Fiene. The combination of F14T5 tubes with an efficacy of 96 and the dual compound hyperbolic reflector makes a synergistic combination for energy savings, which at no time is suggested by Fiene. It would be impossible to combine the truncated pyramid with the

dual compound hyperbolic shape since it is not capable of being nested, a requirement of Fiene. It is, furthermore, impossible to fit the dual compound hyperbolic reflector into a housing that is in the form of the truncated pyramid, since the two shapes are incompatible. Many of the claimed features are lacking. The reflector in Fiene is composed of flat faces of the truncated pyramid, are non-spectral and no claim is made for energy savings. In Claim 15 of Fiene, reflector material is the same as the ceiling tile. In Claims 5, 12, and 18, the structural element is a truncated pyramid. There is no suggestion of a specialized curved shape for the reflector such as a conic section or specifically, a dual compound hyperbolic reflector. In summary, one skilled in the art at the time of the invention would NOT attempt to combine Fiene and Wordin.

In answer to the additional list of patents considered pertinent to the disclosure, a brief comment on each patent follows. Differences between the reference and the current application are noted.

Shemitz et al. US patent No. 6,652,118 B2: This patent teaches a light fixture which has an adjustable reflector, single tube, is asymmetrical and has a baffle. The reflector appears to be in the form of a circular arc, which is an approximation to a parabola. The present application has two tubes, a hyperbolically shaped reflector, which is not adjustable, and has no baffle. It is concluded that the embodiments are very different.

Weathers, US patent No. 6,210,019 B1: This patent teaches a method for retrofitting a light fixture using chains to suspend the assembly. The current application uses no chains.

Edwards, Jr., US patent No. 6,092,913: The reflector appears to be parabolic in shape. The current application calls for a reflector in a hyperbolic shape.

Holder, US patent No. 6,062,704: This invention uses a single CFL, has a reflector in an "arcuate" shape meaning a circular arc, is wall mounted, and is asymmetric. The current invention uses two T5 tubes, has a reflector in the shape of a hyperbola, is intended to be ceiling mounted, and is symmetric.

Holder, US patent No. 5,988,829: This invention uses two CFL lamps (Claim 32), a shield with holes, has a reflector with a white paint finish (column 6, line 58), the reflector is "arcuate" in shape. Figure 15 shows the cross-section of the reflector obtained by use of three circular arcs, which appears to be substantially a parabola (column 9, line 50). The current application uses F14T5 tubes, no light shield, and a spectral reflector.

Belisle et al., US patent No. 5,440,466: This invention teaches a method to retrofit fluorescent light fixtures. It features a flat reflector with a white finish yielding an 87% reflectance (column 4, line 40), and the use of brackets and hinges to attach the retrofit unit to the old light fixture housing. The current application uses a curved reflector that is spectral.

Shemitz, US patent No. 5,555,162: This patent teaches the use of two CFL 4-pin lamps with a reflector in the shape of elliptical-parabolic (column 3, line 60). The current invention uses T5 tubes and a reflector that is hyperbolic in shape.

Shemitz, US patent No. 5,434,762: This patent is similar to the one above in that it uses two CFL lamps. The reflector is in the shape of a circular arc as determined from the figures. The current invention uses T5 tubes and a reflector that is hyperbolic in shape.

Swift et al. US patent No. 5,207,504: This patent teaches the use of a reflector with flat facets, which generally form an approximation to a parabolic shape (column 7, line 31) with a grid in front of the tubes. The tubes are of the high intensity type (column 5, line 22) so energy saving is not a consideration. The lighting system is tunable. The current invention uses T5 tubes and a reflector that is hyperbolic in shape.

Decker, International Pub. No. WO 00/42820: This invention teaches the use of a drop-in retrofit unit having T5 lamps 45 inches long and an approximately parabolic reflector

formed by use of flat facets. The present invention uses T5 tubes 22 inches long and a reflector that is hyperbolic in shape.

CONCLUDING REMARKS

New Matter Statement

Applicants declare that no new matter has been added by this amendment to the patent application per 37 CFR § 1.121(f)

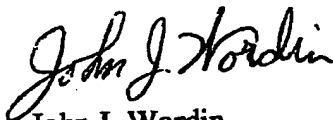
Conclusion

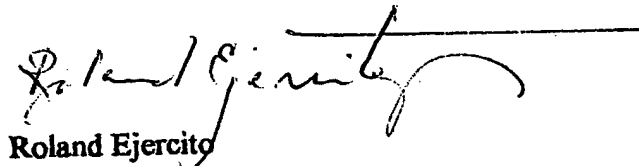
For all the above reasons, applicants submit that the specification, drawings and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore they submit that this application is now in condition for allowance, which action they respectfully solicit.

Conditional Request For Constructive Assistance

Applicants have amended the specification and claims of this application so that they are proper, definite, and define novel structure, which is also unobvious. If, for any reason this application are not believed to be in full condition for allowance, applicants respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. § 706.03(d) and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,


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AMENDMENTS TO THE DRAWINGS

Figures 1, 2 and 5 are submitted as informal drawings with this office action response. Figures 1 and 2, labeled "Replacement Sheet", are included because minor modifications have been added to the diagrams. A new drawing, Figure 5, labeled "New Sheet", is added for clarification to the application to comply with the examiners objections concerning the methods of attachment of the sockets and the reflector. No changes have been made to Figures 3 and 4.